CLAIMS AMENDMENTS

What is claimed is:

Claims 1-2 (cancelled)

3. (currently amended)

A method for enhancing the natural rate of mutagenesis in bacteria by

1) growing bacteria in media utilizing thio-phosphate as the predominant ~~a~~ source of phosphate to create phosphorothioate linkages in genomic DNA which thereby impair DNA editing and repair pathways in the cell

2) allowing mutations to accumulate to the desired level by performing multiple rounds of bacterial growth and amplification in mutator media either by serial dilution ~~diluting~~ into liquid mutator broth and/or by plating individual colonies onto solid agar plates containing thio-phosphate ~~so as to accumulate a high level of mutations with reasonable yield of viable bacteria.~~

4. (currently amended)

A method to facilitate the mutagenesis of recombinant phage DNAs and/or phage DNA libraries comprising:

1) growing bacterial host cells in media containing thio-phosphate as ~~a~~ the predominant source of phosphate

2) infecting recombinant phage at a suitable multiplicity of infection ~~moi~~ into the growing bacterial culture

3) continued culture and replication of the recombinant phage in the host cell culture such that the phage genome is modified with phosphorothioate linkages to inhibit DNA repair and editing of the phage during replication in the cell

4) ~~followed by isolating~~ isolation of ~~the~~ intact phage particles

5) repeating steps 1-3 using the ~~treated~~ now chemically modified recombinant phage and fresh host cells until the desired ~~extent~~ level of mutagenesis is achieved (generally 2 rounds of growth and amplification).

5. (currently amended)

A method to facilitate the mutagenesis of recombinant plasmid DNA and/or plasmid DNA libraries as follows:

1) growing bacteria transfected with a recombinant plasmid DNA in media containing thio-phosphate as ~~a~~ the predominant source of phosphate to create phosphorothioate linkages in the recombinant plasmid DNA which inhibit DNA repair and editing of the plasmid during replication in the cell

2) isolating the recombinant plasmid DNA from the bacterial culture after the culture becomes saturated

3) transforming fresh bacteria with the now chemically modified recombinant ~~isolated~~ plasmid DNA

4) repeating steps 1-3 until the desired ~~extent~~ level of mutagenesis is achieved (generally 2 rounds of growth and amplification).